Coastal Inlets Research Program FY12 Statements of Need (SoNs)

Statements of Need Presented by CIRP at the RARG

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1. REPORT DATE **2012**	2. REPORT TYPE	3. DATES COVERED **00-00-2012 to 00-00-2012**
4. TITLE AND SUBTITLE **Coastal Inlets Research Program FY12 Statements of Need (SoNs)**		5a. CONTRACT NUMBER
		5b. GRANT NUMBER
		5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)		5d. PROJECT NUMBER
		5e. TASK NUMBER
		5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **U.S. Army Engineer Research and Development Center,Coastal and Hydraulics Laboratory,3909 Halls Ferry Road,Vicksburg,MS,39180**		8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)
12. DISTRIBUTION/AVAILABILITY STATEMENT **Approved for public release; distribution unlimited**		
13. SUPPLEMENTARY NOTES		
14. ABSTRACT		
15. SUBJECT TERMS		

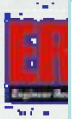| 16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT **unclassified**	b. ABSTRACT **unclassified**	c. THIS PAGE **unclassified**	**Same as Report (SAR)**	**6**	

Statements of Need

Reducing and Removing Vegetation from Coastal Navigation Structures
Tracking Number 2013-N-9

Statements of Need

Identifying and Addressing Potential Sea Level Change Impacts to Navigation Projects
Tracking Number 2013-N-11

Statements of Need

Automated Feature Extraction for Sediment Budgets
Tracking Number 2013-N-15

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Problem:
- Bushes, trees, shrubs grow on navigation structures.
- Walking for inspection is a safety hazard and prevents inspection.
- Removal may cause stone to be displaced and voids occur where roots had grown, destabilization of side-slopes

POH

Need:
- Means to remove vegetation from structure
    - Some removal may require resetting the entire structure cross-section; how to estimate effort/cost?
- Methods to keep vegetation from growing
- Is this a need USACE-wide?

Recommendation:
- Guidance for acceptable herbicides
- Guidance for vegetation removal
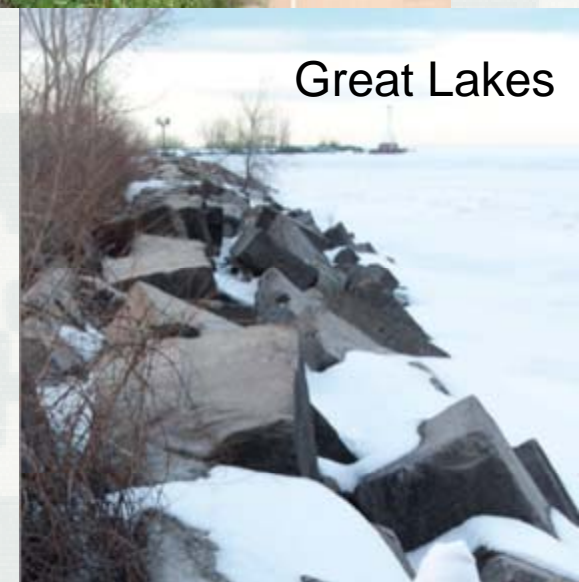- Guidance for impacts to structures once vegetation is removed

Great Lakes

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POH

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Great Lakes

Problem:

• Sea level rise (SLR) and fall (SLF) [also lake level rise/fall] have potential to significantly impact functionality of navigation projects.

  • SLR: navigation structures will experience higher water levels, increased wave energy, increased overtopping, reduced functionality.

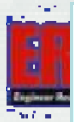 • SLF: channel depths decrease and dredging requirements increase.

Need:

• Physical and numerical modeling for coastal structure damage with SLC

• Guidance for incorporating SLC in planning, design, operation & maintenance of coastal navigation structures

• Guidance for how coastal processes will change with SLC

Recommendation:

• Anticipate implications of SLC on navigation mission by proactive research and guidance; minimize:

  • Under-designed components
  • Decreased project functionality
  • Flooded port/harbor facilities
  • Loss of upland transportation corridors
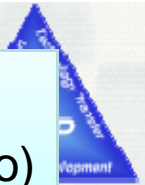 • Unanticipated future project costs

Problem:

• Districts must manage navigation projects to minimize O&M impacts on adjacent beaches

   • Typically involves defining volumetric change through time and defining sediment transport patterns to formulate a sediment budget

• Need to fully capture 3D spatial variation in and around coastal inlets from lidar

• Present practice is to manually delineate geomorphic features for sediment budgets

Need:

• For all USACE developing sediment budgets

• Tools and methods to automatically extract morphologic features and discern pathways from lidar data

   • Provide input to sediment budgets

• Need standard, reproducible methodology

Recommendation:

• Develop systematic methods and an automated tool to extract morphologic features from lidar data

   • ebb/flood shoal, attachment bars, channel

• Provide input to sediment budgets

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